Section 1 - Using Community Health Workers to improve asthma knowledge, self-management, home environment and linkages to community resources

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Summary

Community Health Workers (CHWs) are increasingly used to support asthma management and improve the home environment, particularly among low-income families with children. CHWs assist families with asthma management, providing education and assistance on a variety of topics including medication use and working with health providers. In addition, the CHWs conduct a comprehensive home environmental assessment by interviewing clients and inspecting the home environment. The CHWs provide education on identification and reduction of indoor asthma triggers and work with each client to develop an individualized set of actions to improve indoor environmental quality.

Between December 2002 and June 2005, the AAA program supported three CHWs. The AAA CHWs began in December 2002. KCAF CHWs provided services in English, Spanish, and Vietnamese, and worked with enrolled families over the course of a year. Accomplishments of the CHW program include:

- **Served 274 families** from December 2002 through June 2005.
- **Conducted 200 home environmental assessments** and used the results to make modifications to reduce asthma triggers.
- **Developed a CHW training curriculum.** An effective and well-received training curriculum including field practice was developed and offered over several weeks for the CHWs and included protocols covering 24 topics for the home environment and self-management support. These educational protocols are now in use. ***(link to training curricula document and protocols)***
- **Created tools to assess indoor environmental quality and asthma self-management skills,** which have been pilot-tested and implemented. ***(link to HEC, screening forms, telephone recruitment script, and 3 CHW baseline instruments)***
- **Developed and implemented a comprehensive client recruitment plan and tools.** The recruitment plan incorporates several avenues for recruiting clients into the CHW intervention and also provides opportunities to increase awareness about the activities of the KCAF. ***(Note – link to recruitment plan)***
- **Implemented a systematic triage and referral system** with community partners to ensure a coordinated approach to delivering CHW asthma services in the county.

As a result of the Community Health Workers' efforts:

- **Patient outcomes improved** in a number of key indicators in baseline/exit surveys, including symptom-free days, caregiver quality of life and health care utilization.
- **Caregivers reported appreciation for CHW visits**, assistance, and equipment in in-depth semi-structured interviews.
- **Caregivers have developed their own solutions** and include making sure others clearly understand their issues and then follow through with advice provided; teaching children to recognize their own symptoms so they can take action early; having children help administer treatments; and teaching children when, how, and where to get help.
- **Provider coaching has emerged** as an unanticipated but effective bridge connecting providers to community resources to better serve CHW clients.
- **CHWs teach families about other KCAF services,** including Neighborhood Asthma Committees, training for child care providers, and clinic-based classes (ACT).

Background

Families often find it difficult to make the changes required to improve asthma care on their own. Community Health Workers (CHWs) are increasingly used to support asthma management and improve the home environment, particularly among low-income children. CHWs are from the communities they serve, usually have personal experience with asthma, and many are bilingual and bicultural. With their blend of personal and professional experience, they are effective in building trust, teaching, and motivating families to address asthma more effectively.

Results are very promising from several studies evaluating the impact of CHWs. The Healthy Homes I research project- one of the three CHW programs of the KCAF - carefully measured the impact of CHWs using a randomized controlled trial[1,2,3]. The project found that for the group receiving the most comprehensive CHW services:

- Asthma symptoms were reduced - the number of days with asthma symptoms in the last two weeks decreased by 4.7 days.
- The quality of life for caregivers improved - how much they worried about asthma and how much it affected their lives improved by 1.6 on the Pediatric Asthma Caregiver Quality of Life Scale[4] (ranging from 1 to 7, with higher scores indicating better quality of life).
- Children went to the emergency room and hospital less often -children who needed urgent medical attention declined by 64%.
- Urgent care costs (hospital admissions, emergency department visits and unscheduled clinic visits) decreased – two month costs decreased an estimated $201-$334 per child.

For more information about Healthy Homes-I, please see (http://www.metrokc.gov/health/asthma/healthyhomes/).

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[1] Krieger JW, Takaro T, Song L, Weaver M. The Seattle-King County Healthy Homes Project: A Randomized, Controlled Trial of a Community Health Worker Intervention to Decrease Exposure to Indoor Asthma Triggers. *American Journal of Public Health*,2005; 94(4): 652-659.

[2] Takaro TK, Krieger JW and Song L. Effect of environmental interventions to reduce exposure to asthma triggers in homes of low-income children in Seattle. *Exp. Anal. Env. Epid*. 14: Suppl 1:S133-43, 2004.

[3] Krieger J, Takaro T, Allen C, Song L, Weaver M, Chai S, Dickey P. The Seattle-King County Healthy Homes Project: Implementation of a Comprehensive Approach to Improving Indoor Environmental Quality for Low-Income Children with Asthma. *Env Health Perspec*, 2002;110 (suppl 2): 311-322.

[4] Juniper EF, Guyatt GH, Feeny DH, et al. Measuring quality of life in the parents of children with asthma. Quality of Life Research. 1996;5:27-34.

These results are similar to those from other projects around the country. The Inner City Asthma Study found that in-home environmental education and support reduces the burden of asthma for low-income families[5]. A growing number of studies are showing that CHWs are effective in improving asthma care. KCAF members have seen beneficial outcomes from three local CHW efforts: the Odessa Brown[6] and Healthy Homes-I and II projects.

Description of AAA Community Health Worker Program

Between December 2002 and June 2005, the AAA program supported up to three CHWs, one of which was funded for the first year by the City of Seattle. Because of recruitment challenges (described below) the program was not at full capacity until late spring of 2003. The program collaborated closely with two other KCAF-sponsored CHW programs, Healthy Homes II and Better Homes for Asthma (links to those programs). When AAA funding ended in July 2005, the program transitioned to Steps to Health-King County, which will support CHW services through 2008.

Overview of Program

The CHWs provided services in English, Spanish, and Vietnamese to families who had children with persistent asthma, had incomes at or below 250% of poverty, and resided in the AAA target area. CHWs worked with each enrolled family over the course of a year. They each worked with about 50 clients at a time and made 40-50 visits per month. An Asthma Management Coordinator, who was a public health nurse, provided clinical consultation and oversight for the CHWs and their clients.

The AAA CHW program model was adapted from the Healthy Homes research model. Major adaptations were in shifting from a rigid research protocol in providing standardized visits to one that was flexible in meeting the clients' needs. As a result, while educational messages were consistent among all clients, clients received a different number of visits and more varied services than in the Healthy Homes CHW model. CHWs may visit each family two to seven times over a one year period.

Data collection and needs assessment. At the initial visit, the CHW collected baseline data that included information about symptoms, medication use and technique, health care access and utilization, caregiver quality of life, and other information that the CHW could use to understand the child's situation and prioritize work with the family (link to

[5] Morgan WJ, Crain EF, Gruchalla RS, O'Connor GT, Kattan M, Evans R 3rd, Stout J, Malindzak G, Smartt E, Plaut M, Walter M, Vaughn B, Mitchell H; Inner-City Asthma Study Group. Results of a home-based environmental intervention among urban children with asthma. *N Engl J Med*. 2004 Sep 9;351(11):1068-80.

[6] Stout JW, White LC, Rogers LT, et al. The asthma outreach project: a promising approach to comprehensive asthma management. *J Asthma* 1998;35:119-127.

baseline instrument). Some of the most common problems identified in the baseline interviews included: 1) poor inhaler or nebulizer technique that prevented the children from getting the full measure of their medications; 2) normalizing, and thus minimizing asthma symptoms; 3) misunderstanding of and under-use of medications; 4) no action plans at home, school or child care; and 5) poor patient-provider communication.

At the subsequent visit, the CHW conducted a home environmental assessment to identify potential asthma triggers in the home. The assessment included an interview with the caregiver and an inspection of the home (link to HEC). The most common housing-related problems identified included: 1) moisture build-up and poor ventilation (e.g., windows that did not open, nonexistent or nonfunctional fans in bathrooms and kitchens); 2) old, deteriorated carpeting; 3) and mold.

One year following the baseline visit, the CHW would conduct an exit visit with the family, the results of which were used for program evaluation purposes and to assess the need for any additional support. The exit survey included questions from the baseline and HEC instruments (link to exit instrument). About three months after the exit was conducted the CHW would make a final check-in phone call to see how the child was doing.

Education and advocacy. Information gathered in the first two visits was used to develop goals and priority actions with the family (link to goal sheet). Over the next series of visits (average 3-5 visits), the CHW provided education to the family, using motivational interviewing techniques, to support their self-management and trigger reduction goals. The CHW also provided the family with items to help implement recommended actions, including the following:

- Allergen control pillow and mattress encasements
- "Green Clean" cleaning kit (bucket, gloves, and low fume cleaning products)
- Low emission vacuum
- Peak flow meter (when needed)
- Asthma action plan
- Medication storage box
- Packets of educational materials (link to educational materials list)

The CHW provided education in accordance with 24 protocols that were utilized by all three KCAF-sponsored CHW programs (link to protocols). Frequently, education and tools for the family was not enough to resolve an issue that was compromising a child's health. Many families lived in substandard housing. The CHWs were strong advocates for their clients in getting needed repairs in the home or relocating to safer housing. Clients also frequently received less than optimal medical care. The CHW taught clients how to communicate with their providers to make sure their children got the best possible care. At times, the CHW would accompany the client to a clinic visit to help advocate for the child. The Asthma Management Coordinator also provided an essential role in advocating for the client when there were concerns about the severity of symptoms or quality of care. In 41 cases, the AMC made phone calls to the child's provider to explain concerns that she, the CHW, and caregiver had about the child's asthma or medications.

Care coordination. The Asthma Management Coordinator communicated with providers when a child was experiencing alarming symptoms or had medication issues that need immediate attention. Working together, the CHW and Asthma Management Coordinator served as a bridge between the families and providers by facilitating communication, educating both parties about care guidelines, providing encounter reports and action plans for the provider, and by helping caregivers strengthen their communication skills with providers.

Program Infrastructure

Staffing. A lead Community Health Worker provided direct supervision for the CHWs. She monitored work loads and schedules, and assigned new clients to CHWs based on the client's linguistic need and staff caseloads. The Asthma Management Coordinator provided clinical back-up and technical oversight for the CHWs. In addition to reviewing client cases with the CHWs, she accompanied them occasionally on visits to ensure that educational messages were provided in accordance with protocols (link to home visit quality assurance checklist).

Training and case conferencing. The KCAF CHW programs developed a comprehensive forty-hour training curriculum that was offered over several weeks after the CHWs were hired ***(link to training schedule)***. It included didactic and hands-on training covering 24 topics for the home environment and self-management support (e.g., warning signs of asthma, using an asthma action plan) (***link to educational protocols)***. Because new training needs arose as the CHWs were in the field, occasional follow-up training was provided throughout the program. For example, in response to concerns about the well-being of a child, a refresher training was held about child protection services.

Ongoing clinical back-up. Ongoing clinical back-up from the Asthma Management Coordinator was provided through bi-weekly case conferences in which all KCAF CHW program staff participated. At those meetings, some of the CHWs would present challenging cases for the staff to strategize about together or a success story in which important lessons were learned. Review of those cases provided an opportunity to reinforce protocols and standardize approaches among the programs.

Data tracking and evaluation. AAA staff developed a client data tracking system in Access for monitoring productivity, centralizing data for evaluation purposes, and to track clients. Summary data from each visit to a client was entered into the database.

Recruitment

In conjunction with the Cross Project Coordination Group (see sections 5 and 6), AAA developed and implemented a recruitment plan with accompanying materials. The plan identified several avenues for recruiting families into the CHW program. It also provided opportunities to increase awareness about the activities of the KCAF. Initially the plan focused on recruiting through clinics—providers would send letters to their asthma patients and the CHWs would follow up with the letters by phone. Because Healthy

Homes II was using the same approach and had priority for recruitment (as determined by the Cross Project Coordination group), the pool of clients eligible to recruit through this strategy was very low. Additionally, client phone numbers and contact information obtained from participating clinics were often not current, making it difficult to reach potential clients. In addition, the Institutional Review Board (IRB) and the Health Insurance Portability Accountability Act (HIPPA) constraints complicated referrals from community partners.

To bolster recruitment, outreach efforts were intensified beyond clinic-based recruitment including more outreach in community settings and to community-based organizations and schools. CHWs became actively engaged in building one-on-one relationships with CBOs, clinic providers and staff, and school personnel who refer families to the program. They also recruited families at community events. Clinics participating in the Learning Collaborative (see the Section 4-Clinical report) developed improved referral mechanisms, yielding additional clients. A clinic referral system form was developed to efficiently refer patients to the CHW program. Schools became an important referral source. School-based recruitment included posters at schools, distributing flyers to each student, outreach to school nurses, CHW visits to schools to make presentations to parents and teachers, and providing in-service education and program information to school staff. Over 60 school personnel (teachers, health educators, and family resource planners) attended three continuing education courses offered by AAA staff. The classes exposed attendees to the home intervention and taught them on how to identify and refer children into the CHW program.

The most fruitful referral sources were the following: 1) providers with whom the CHW had developed a relationship, 2) school flyers that were sent to students' homes, 3) Head Start programs at which the CHWs conducted outreach presentations, 4) flyers that were posted in various locations in the community, and 5) word of mouth.

A protocol for preventing and reducing loss to follow-up was established to retain individuals who had been recruited. ***(Note – link to loss to follow up protocol).***

Program Costs.

For other communities interested in starting up their own CHW program, the KCAF estimates that the annual cost for operating the CHW programs is $1345 per client, which includes CHW salaries and benefits, one FTE per 3-5 CHWs for supervision and technical oversight, administrative support and data management, 13% overhead, and materials. This estimate assumes another program would adopt the KCAF educational curricula and protocols, recruitment strategies, and other materials.

Measuring Progress Toward CHW Objectives

The primary process indicators for the CHW program involve the number and quality of contacts between CHWs and families. Outcome indicators are divided into two areas: asthma self-management and the home environment.

CHW Process Indicators

Table 1 lists the process indicators for the CHW activities, shows the degree to which they were accomplished and next steps after AAA funding ends. CHWs worked with 274 families, and conducted 200 environmental assessments. CHWs were supported by 24 educational protocols, which they incorporated into their visits, and 79 hours of ongoing training and case management support.

Table 1. Process Indicators for CHW Activities

Process objective	***Status/Indicators***
CHWs trained in self-management support protocols	• 3 AAA CHW's trained • 79 training hours completed between January 2003 and June 2005 • CHWs attained required level of knowledge
CHW recruitment plan developed and implemented	• Comprehensive recruitment plan and supporting materials targeting schools and clinics developed and implemented • Assessed effectiveness and further intensified outreach efforts
CHW screening and data collection tools developed and pilot tested	• Phone screen, triage protocol, baseline, exit and HEC in place
CHWs working with families on an ongoing basis to increase knowledge, improve asthma care, improve the home environment	(Through June 2005) • 274 clients enrolled • 60 closed (45 loss to follow-up) • 200 environmental assessments
CHWs following AAA protocols on home visits	• 24 protocols established; 9 revised in 2003
Asthma Management Coordinator works one on one with families' healthcare providers	• 41 providers were contacted by the Asthma Management Coordinator about severe patients

In addition to program logs, interviews with caregivers (conducted by the AAA Project Director and a graduate student) provided another source of process data. In person interviews with 20 caregivers were conducted between May and August 2004.

The results presented below were taken from the September, 2004 Caregiver Key Informant Interview Report and focus mainly on how the CHW helped the caregiver with his/her child's asthma and areas where help was not obtained.

Examples of how CHWs helped caregivers (based on interview responses):

- Respondents found the supplies provided by CHWS very useful.
  Cleaning solutions. That was the greatest. I used to choke when I cleaned the house, especially the bathroom. I want to keep the place clean and do not want to have my son suffer from asthma the way I did. The CHW taught me about what cleaning solutions I could use and she brought me 'the green bucket.' So now I use vinegar all the time and it really does clean and I don't choke.

  Getting supplies: mattress and pillow covers and cleaning equipment.

- CHWs helped caregivers obtain information and increase knowledge. Several families had "red folders" which the CHW had given them where they kept their asthma information. One mother said she added asthma pamphlets that were obtained at the clinic. Educational material on allergies, triggers, and medication were part of their folders.
  Knowledge! The CHW had good information and I learned something each time she came. I liked the pamphlet she gave us on keeping your environment healthy. My daughter took the pamphlet to see how she could keep her room healthy.

  Having someone listen and make suggestions and explain things to us. She explained things clearly, discussed triggers (new information), helps us with paperwork, gave us pamphlets and talked with BOTH of us, father and child.

- CHWs helped caregivers build confidence in their ability to manage their child's asthma.
  The CHW gave me confidence in what I was doing (nebulizer, medications, cleaning).

Examples of areas where help from CHWs was not obtained (based on interview responses):

- Nine (45%) families said there was "nothing" the CHW was not able to help them with.

- Six (30%) of the 20 families do not use their vacuum cleaners any longer. The reasons given were: it is broken (n = 2), too noisy (n = 1), doesn't work and it smells really bad (n = 1), smoke comes out of it when I turn it on (n = 1), we gave it away (n = 1).

- Caregivers faced challenges with pets. Two families talked about their pets; both had dogs. These pets were part of the family and each was trying to control the animal's contact with the child with asthma.

- Other unmet needs included:

The CHW was not able to help with the school This is a big issue. When the nurse is not at the school the assistant receptionist is in charge of health…The receptionist is supposed to give my daughter her medicine, but she forgets and she is not cooperative in helping with this. I have made myself a real nuisance at the school over this."

Needing help deciding if a fan would help or harm the child

Information about the pharmacy and medications

Help with daycare

What happens if his nebulizer breaks and I can't fix it?

Suggestions from caregivers for addressing unmet needs. Caregivers interviewed were asked whether they had any suggestions of how these unmet needs could be addressed. Suggestions ranged from being small in scope and immediate such as "take a hot bath" to large in scope and long term, such as wanting to own a home so that the family did not have to depend on a landlord. Other suggestions for addressing unmet needs included learning as much as possible about asthma, to not be afraid to ask questions, and to pay close attention to your child so you pick up the first sign of asthma.

CHW Outcome Indicators

Tables 2 and 3 summarize the results regarding asthma management for the AAA CHW program. A total of 67 families completed both a baseline and exit interview. The results were generally very positive: of the 19 indicators examined, 15 showed a statistically significant improvement (based on a t-test comparing baseline to follow-up). Only one indicator (percent using their spacer more than half the time) showed a statistically significant worsening.

The key outcome indicators of asthma symptoms and health care utilization all showed substantial improvement (Table 2). Symptom free days in the previous two weeks increased from 8.0 to 10.3, an improvement of nearly 30%. Caregiver quality of life improved, with an increase of 21% in the overall scale. There were significant declines in the percent with emergency department visits (57% to 37%) and with an unscheduled office visit (64% to 30%). Other areas of improvement (Table 3) included the percent of patients with a written action plan (33% to 57%), and self-efficacy in managing asthma (increase of 24% in the combined scale).

An additional analysis was conducted comparing the 67 families that completed both baseline and exit interviews with the 114 families completing only the baseline. Only one variable (child's age) showed a statistically significant difference (based on a t-test): families completing both waves of the survey had younger children than those completing the baseline only (5.8 years versus 7.1 years). On all other key measures there were no significant differences, including caregiver age, symptom-free days, health care utilization, self-efficacy and caregiver quality of life.

Table 2. Primary Asthma Outcomes for CHW Families

Indicator	*Baseline Interview*	*Exit Interview*
Number of families	67	67
Number of symptom-free days (past two weeks)	8.0	10.3 **
Caregiver Quality of Life scale: All items (1-7)	4.8	5.9 **
Caregiver QOL scale: Emotional functioning (1-7)	5.0	6.0 **
Caregiver QOL scale: Activity limitation (1-7)	4.3	5.8 **
Percent with a hospital stay, past 12 months	25%	13%
Percent with an ED visit, past 12 months	57%	37% **
Percent with hosp or ED visit, past 12 months	66%	41% **
Percent with an unscheduled office visit, past 3 months	64%	30% **

Notes:
** - $p<.05$ for comparison of baseline versus exit (t-test)

Table 3. Additional Asthma Management Outcomes for CHW Families

Indicator	*Baseline Interview*	*Exit Interview*
Number of families	67	67
Percent of persistent patients with a written action plan	32%	60% **
Percent using their spacer more than half the time	91%	77% **
Percent of persistent patients on controller medications	67%	83%
Number of days controller medications taken, past two weeks	10.7	11.8
Medication use: Problems administering (1-5 scale)	1.9	1.4 **
Medication use: Problems with missing doses (1-5 scale)	2.1	1.9
Medication use: Combined scale-administration and dose (1-5 scale)	2.0	1.6 **
Medication self-management --scale of asthma monitoring behaviors (6-24)	17.5	19.3 **
Self-efficacy in controlling symptoms: Child (1-10)	6.7	8.3 **
Self-efficacy in controlling symptoms: Adult (1-10)	6.6	8.3 **
Self-efficacy in controlling symptoms: Combined (1-10)	6.7	8.3 **

Notes:
** - p<.05 for comparison of baseline versus exit (t-test)

Table 4 shows outcomes for the home environmental assessment. The results were somewhat weaker than for the asthma management indicators; in only one case was there a statistically significant improvement--the percent with mattress and pillow covers increased from 17% to 69%. There were increases in the percent with working fans in the bathroom and kitchen, and reductions in mold and moisture problems. This was offset by a slight decline in the percent vacuuming regularly. None of these baseline/exit differences was statistically significant, however.

Table 4. Home Environment Outcomes for CHW Families

Indicator	*Baseline Interview*	*Exit Interview*
Percent of families vacuuming at least once/week	96%	86%
Percent of homes with moisture problems	53%	39% **
Percent using mattress and pillow covers	17%	69% **
Percent with a working kitchen fan ventilated to the outside	55%	68%
Percent with a working bathroom fan	65%	74%
Percent with pets that come inside	17%	13%
Percent of homes with mold	46%	35%
Percent of homes with roaches	12%	12%
Percent with someone who smokes inside the house	5%	6%

Notes:
** - p<.05 for comparison of baseline versus exit

Lessons Learned

In the course of implementing the AAA CHW program, a number of lessons were learned that might provide guidance for other similar efforts in the future.

- **Allow enough time for instrument and protocol development.** The timeline for implementation was unrealistic and was further compounded by IRB delays. Because the implementation phase was delayed and extended, the CHWs were trained and ready to begin home visits before the instruments, recruitment plans and protocols were finalized, resulting in downtime for these staff members. Protocols should be completed prior to hiring staff and more time should be allowed for completing instruments.
- **Develop a multi-channeled recruitment strategy.** In an effort to avoid confusion when all CHW programs started recruiting at the same time, a triage recruitment protocol was developed that gave Healthy Homes II priority for enrollment. As a result, AAA recruitment lagged initially. AAA staff developed a new recruitment plan after initial challenges and although the plan was effective in the long term, recruitment goals were not met in the first year of the project.
- **Carefully consider the advantages and disadvantages before adopting a flexible visit protocol**. A flexible visit protocol allows the CHW to tailor visits according to families' needs. However, it makes it more difficult to monitor quality of services to ensure that clients are receiving the full support needed. AAA staff believed the benefits of a flexible approach outweighed the drawbacks.
- **Develop methods to periodically assess and address the client's level of understanding, misperceptions, and self-efficacy.** Following several home visits, misunderstandings and misinformation remained among caregivers about medication use and asthma self-management. Simple and effective methods to keep track of medications need to be found for families. One approach developed by the CHWs, was to provide medication boxes for each client to hold medications and instructions for use.
- **Develop a process for CHWs to periodically troubleshoot caregiver difficulties** so issues are jointly addressed and solutions developed throughout the intervention. Difficulties and challenges exist for caregivers. They include tiring of nagging children to take their medicine, not having enough time and energy to keep the house trigger-free, uncooperative landlords, and a doctor hesitant to make an asthma diagnosis. Working with caregivers on a regular basis to identify and troubleshoot problems can help them better deal with the additional challenges of having a child with asthma.
- **Provide regular opportunities for CHWs to case conference with the Asthma Management Coordinator.**
- **Lessons learned about staffing:** It is helpful if the CHW has personal experience with asthma to connect with families, although it is not critical. It is also important to have a lead CHW to monitor caseloads, schedules, and productivity.

- **Lessons learned about managing caseloads:** Caseload expectations need to take into account the amount of outreach and office work CHWs must do. Over time AAA tried to minimize paperwork so that CHWs could spend more time in the field. On average a caseload of 50 clients per CHW, with 40-50 visits per month seemed feasible. Families who are not home during a scheduled visit had a major impact on productivity. Strategies developed to minimize no show rates include making reminder calls, mailing postcards with reminders of baseline visits, and calling right before leaving for a visit. No shows were still a problem.
- **Lessons learned about maintaining families in the CHW program:** KCAF CHW programs developed many strategies for reducing the number of clients lost to follow up. Strategies included spacing out the distribution of supplies over a number of visits, maintaining telephone contact over periods of time with gaps in visits, using postcards when a client could not be reached by phone, and contacting providers when contact was lost with a patient. While the strategies were helpful, they were not a panacea. In the AAA target area, the school districts have close to a 70% turnover rate of their students. In communities with such high turnover, some loss to follow up is inevitable.
- **Collaborate with similar programs to leverage resources and coordinate recruitment.** The AAA CHW program benefited greatly from close collaboration with two other KCAF-sponsored programs (Healthy Homes II and Better Homes for Asthma), which provided similar CHW services at the same time. It was important to anticipate inevitable complications and use the neutral Cross Project Coordination group to help set parameters to minimize potential turf issues.